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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/960,224	10/29/97	NISHIDA	S 046916

EXAMINER	
QI, Z	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or pr ceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	08/960,224	NISHIDA ET AL.	
	Examiner	Art Unit	
	Mike Qi	2871	

-- The MAILING DATE f this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Apr.5, 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3-15* is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☐ Notice of References Cited (PTO-892)
16)☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article "Principles and characteristics of Electro-Optical Behaviour with In-plane Switching Mode" (Oh-e et al) in view of US 5,085,973 (Shimizu et al).

Claim 1, Oh-e et al discloses (in the paragraph "Principles of Proposed In-plane Switching Mode" and Fig. 1) a liquid crystal display comprising:

- a first substrate and a second substrate opposed to each other;
- when a predetermined voltage is applied, the predetermined electric filed will be generated on the second substrate;
- a liquid crystal layer injected in a gap between the pair of substrates;
- the electric field generated by the second substrate being substantially parallel to the liquid crystal layer to control the display.

Oh-e does not expressly disclose that the first substrate on which a plurality of color

layers having transmission wavelengths different from each other are provided in parallel to each other, and the liquid crystal layer having a thickness which varies depending upon the transmission wavelengths of the color layers, but those limitations were well known. The disclosure of Shimizu et al is an evidence.

Shimizu discloses (Fig.1 and col.2, lines 28-33) that a liquid crystal panel comprising a first substrate (1) on which a plurality of color filters (2) (red, green and blue, corresponding to the different wavelengths) having transmission wavelengths different from each other are provided in parallel to each other, and the liquid crystal layer having a thickness which varies depending upon the transmission wavelengths of the color filters, so as to improve the contrast, and this is the "multi-gap", and the color filter can give a pattern having a high precision and an excellent surface smoothness and has a good environmental resistance, so that means the coloring is controlled in a case of an oblique view or front view will have a good environmental resistance and a wide viewing angle.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made in which the thickness of the liquid crystal layer varies depending upon the different wavelengths of the color layers as claimed in claim 1 to achieve a good environmental resistance and a wide viewing angle as taught by Shimizu.

Claim 2, Shimizu et al discloses in Fig.1 that the thickness of the liquid crystal layer increases in proportional to the wavelength of the corresponding color filter, i.e., the thickness of the liquid crystal layer increases in proportion to the wavelength from blue (460 nm) to red (650

nm), and the function of the color filter must be able to passing light 70% or more of peak of incoming light, so as to improve the contrast, and that was conventional.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the thickness of the liquid crystal layer increases in proportional to the wavelength of the corresponding color filter, and the light transmission factors of the color filter higher than 70% of peak of incoming light as claimed in claim 2.

Allowable Subject Matter

3. Claims 3-15 are allowable.

The prior art of record neither teaches nor discloses a liquid crystal display panel comprises various elements, more specifically, as the following:

the distances between the pixel electrodes and the opposing electrodes are different for the individual color layers [claims 3 and 5];

the optical compensation layer having a negative refractive index anisotropy in one axis direction, being parallel to at least one of polarization axes of the two polarizing plates, and disposed between the substrate and the polarizing plate [claim 7].

Response to Arguments

4. Applicant's arguments filed on April 5, 2001 have been fully considered but they are not persuasive.

1) Applicant argues that claim 1 claimed the changing of the thickness of the liquid crystal layer in each color layer in order to efficiently control coloring when viewing is from an oblique direction in the IPS mode liquid crystal display element having a wide view angle.

However, Shimizu discloses (Fig.1 and col.2, lines 28-33) that the liquid crystal layer having a thickness which varies depending upon the transmission wavelengths of the color filters, so as to improve the contrast, and the color filter can give a pattern having a high precision and an excellent surface smoothness and has a good environmental resistance, so that means the coloring is controlled in a case of an oblique view or front view, and will have a good environmental resistance and a wide view angle.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made in which the thickness of the liquid crystal layer varies depending upon the different wavelengths of the color layers as claimed in claim 1 to achieve a good environmental resistance as taught by Shimizu.

2) Applicant argues that claim 2 requires arranging the thickness in proportion to wave length including 70% or more of peak of incoming light to efficiently control coloring when viewing from an oblique direction.

However, Shimizu et al discloses in Fig.1 that the thickness of the liquid crystal layer increases in proportional to the wavelength of the corresponding color filter, i.e., the thickness of the liquid crystal layer increases in proportion to the wavelength from blue (460 nm) to red (650

nm), and the function of the color filter must be able to passing light 70% or more of peak of incoming light, so as to improve the contrast.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the thickness of the liquid crystal layer increases in proportional to the wavelength of the corresponding color filter, and the light transmission factors of the color filter higher than 70% of peak of incoming light as claimed in claim 2.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703)308-6213 .

Mike Qi
May 30, 2001

KENNETH PARKER
PRIMARY EXAMINER